

Cookers

The protocol below describes a series of minimum tests that should be performed on electric ovens in order that the product can be considered functional and fit for re-use. The equipment should pass these tests in order for it to be considered suitable for re-use and the outcome should be recorded for auditing purposes. This protocol should be used within the framework of PAS 141 for re-using electrical equipment. The tests are general in nature so that the protocol can be applied as widely as possible. As a consequence, specific testing procedures and techniques are not described and appropriate equipment should be used to complete the described protocols.

Scope

This protocol includes all domestic freestanding and integrated oven cooking units that use electricity as the fuel, including conventional and fan-assisted ovens and ceramic, sealed plate and induction hobs. It does not include partly or wholly gas-fuelled units. The original equipment manufacturer's user manual should be used where available to ensure the equipment functions as originally intended.

Test procedure¹

In addition to the specific tests, inspection of the electrical and electronic equipment prior to use should be performed to ensure compliance with the law. For example, all equipment should undergo Portable Appliance Testing to ensure electrical safety. Inspection of the cosmetic condition of the equipment should also be performed to ensure that the external casing is not damaged in such a way that could affect the future performance of the product (e.g. a crack in the casing that could lead to degradation of the internal components).

Preparation process	Components	Test	Test results
Visual inspection	Casing and back panels	Examine casings and back panels of the device.	There are no fractures or corrosion present.
	Doors, hinges and handles	Visually check the doors of the oven(s) and grill (if applicable).	The door(s) can be opened fully on its hinges using the handle, and can remain in the closed and open position.
	Knobs, switches and fixings	Check the condition of the knobs, switches and fixings.	All should be present and Undamaged.
	Internal shelving	Check the condition of all supplied shelves and runners.	All internal shelves and runners fit correctly.
	Feet (if applicable)	Check the feet.	Feet are all present and can be rotated to level appliance.
	Hob lid (if applicable)	Check the condition of hob lid. If the lid is hinged, check that it opens and closes fully.	The hob lid is undamaged and can open and close if hinged.
Safety	Plug and lead cables	Examine the plug and lead cables.	All in good condition, sleeved, with correct fuse and securely connected.

¹ Sources include user manuals from Hotpoint, Indesit, Samsung and Zanussi, and "Maintaining portable electric equipment in low-risk environments", HSE 2012.

Preparation process	Components	Test	Test results
Function test	Door seals	Thoroughly check seals and remove any debris / grit. Test the seal along one side of the door by positioning a piece of paper between the appliance and the closed door. Repeat for the other two accessible sides.	Door seals should be clear of debris and undamaged and intact (with all seals in contact with main appliance). Paper should remain in situ and not be easily moved when door is shut.
	Oven / grill heating elements	Turn an oven or grill cavity on, set to a low temperature and immediately (within 10-20 seconds) place a hand near (but not on) to the elements to check that they are heating. Repeat for all other oven and grill cavities. For fan-assisted ovens, an additional element at the rear of the cavity may be present and require testing.	All oven and grill elements begin to heat.
	Hob heating elements	Turn a hob on, set to its lowest temperature and immediately (within 10-20 seconds) ensure that it begins to heat. Repeat for all other hobs.	All hob elements begin to heat.
	Oven temperature control	Turn an oven cavity on and set the temperature control to 100°C. After 20-25 minutes check the oven temperature. Repeat above with a temperature setting of 200°C. Repeat process for all other oven cavities.	The oven temperature(s) should sit between 80°C-120°C. The oven temperature(s) should sit between 180°C-220°C.
	Grill/hob temperature control	Turn the grill cavity on to its highest setting. After 10 minutes check the element. Repeat for dual-grills. Turn a hob on, increase the temperature setting and ensure that the temperature from the hob begins to increase accordingly. Repeat for all other hobs.	The grill element should glow red and not contain any areas which are darker (indicating burn-out) or brighter (indicating impending failure) than the rest of the element which is predominantly uniform in colour. All hobs produce increasing heat in accordance with an increase in the temperature setting.
	Oven fan (if applicable)	Turn the fan-assisted oven cavity on.	The fan motor rotates the fan and it reaches a constant speed.
	Oven / grill light	Turn on power to the oven (and grill, if applicable) and inspect the internal light bulb.	The light remains on whilst the oven / grill is on.
	Clock function and LED display	Set the clock to '00:00' and then to '22:22'. Adjust to the correct time and leave for 10 minutes.	All seven bars of all four LED display sections light up. The clock can be set and keeps time.
	Timer function	Set the timer function for one minute. Cancel the timer when it sounds. Set delayed cooking and auto turn-off features using the clock	After one minute the timer alarm should sound. It should cancel when pressed. The oven should start and get to temperature or stop and cool down as desired by the programme
	Touch / retractable controls	Use all touch controls and depressed and released retractable controls.	All touch and retractable controls function properly.

Further information and relevant equipment

Thermostats / thermocouples will be needed to check temperature. All former user identification (e.g. asset tags, portable appliance test stickers, company logos etc.) should be removed. Manufacturers brand labels and rating plates should not be removed.

If any process fails the unit may require disassembly and / or repair. Identify any hazards, risks and controls before the appliance is disassembled to reduce risk. Where replacement components are required to replace a missing or faulty component, such replacements must not impair the product safety. The appliance should then be retested for safety and for function.

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Dishwashers

The protocol below describes a series of minimum tests that should be performed on dishwashers in order that the product can be considered functional and fit for re-use. The equipment should pass these tests in order for it to be considered suitable for re-use and the outcome should be recorded for auditing purposes. This protocol should be used within the framework of PAS 141 for re-using electrical equipment. The tests are general in nature so that the protocol can be applied as widely as possible. As a consequence, specific testing procedures and techniques are not described and appropriate equipment should be used to complete the described protocols.

Scope

This protocol refers to domestic-use dishwashers that use water as the primary cleaning solution, and excludes commercial dishwashers. The original equipment manufacturer's user manual should be used where available to ensure the equipment functions as originally intended.

Test procedure¹

Some testing procedures advised within this protocol require the use of chemical detergents, for which the appropriate Material Safety Data Sheet (MSDS) should be consulted, risk assessment completed and appropriate regulatory agencies informed and disposal routes developed. Clean kitchen crockery or utensils will be needed.

In addition to the specific tests, inspection of the electrical and electronic equipment prior to use should be performed to ensure compliance with the law. For example, all equipment should undergo Portable Appliance Testing to ensure electrical safety. Inspection of the cosmetic condition of the equipment should also be performed to ensure that the external casing is not damaged in such a way that could affect the future performance of the product (e.g. a crack in the casing that could lead to degradation of the internal components).

Preparation process	Component	Test	Test results
Visual inspection	Hoses / trims / connector / seals	Check condition of hoses, trims and connectors. Check door seals for damage.	All hoses / connectors and seals are undamaged and fit to machine tightly. Trims are present / undamaged.
	Door hinges and handles and detergent dispenser	Visually check the condition of door or lid, handles and detergent dispenser.	All parts are secure, intact and undamaged.
	Knobs, switches, internal racks and spray bars	Check to see if there are any knobs, switches, internal racks and spray bars missing or damaged.	All should be present and undamaged.
	Cabinet and back panel	Examine condition of cabinet and back panel.	There should be no cracks or corrosion present.

¹ Sources include dishwasher maintenance manuals from AEG, Beko, Bosch, LG and Samsung, and "Maintaining portable electric equipment in low-risk environments", HSE 2012.

Preparation process	Component	Test	Test results
	Feet	Check all four feet.	Feet are all present and undamaged, allow the appliance to sit securely on the floor and can be adjusted to level the unit.
Safety	Plug and lead cables	Examine the plug (insulated) and lead cables.	All in good condition, sleeved, with correct fuse, correctly and securely connected.
Function test	Door locking mechanism	Plug in the machine and start on a pre-set programme. Check the locking mechanism works before the machine begins operating. Check that the locking mechanism stops the machine by opening the door part-way through the programme.	The door locks and the machine runs the set programme. The programme stops when the door is opened.
	Hoses / connectors / seals	Connect all hoses to water supply and check for leaks, include the drain hose. Ensure the hot and cold inlet valves are operating correctly and not leaking (where fitted).	Dishwasher fills with water and there is no leaks from any of the hoses, door seal or from around the connectors.
	Programme control timer	Fill the dishwasher with clean items ² and run on a full programme at a 'normal' or 'eco' temperature.	Machine follows set programme through to the end, showing that the timer functions correctly. Items have not been soiled.
	Internal components	Check all internal components etc. originally fitted by manufacturer (such as internal racks) are functioning correctly.	All components etc should respond to functionality tests.
	Thermostat and heating element	Begin a programme. Check that the water heating process begins by opening the door part-way through the programme.	Heat and steam comes from the opened appliance, indicating that the water heated up during the programme.
	Detergent, salt and rinse aid dispensers	Check detergent, salt and rinse aid dispensers and valves. Place detergent, salt and rinse aid in dispensers.	During the cleaning cycle the detergent is taken from the dispenser.
	Wash and rinse phases	Set the machine to run on a short programme. The machine should take in water during the washing phase without overflowing, drain the water on completion of the wash phase, and take in more water during the rinse phase without overflowing. Listen to check that the upper and lower spray arms are rotating and dispensing water.	Water is taken in and the machine goes through the wash and rinse phases, also proving that the water sensor works.
	Drain phase	Ensure water drains after the wash phase and after the rinse phase.	The machine is empty after the wash phase and after the rinse phase.
	Dry phase	Following the rinse phase, check that the drying phase begins.	The heating element heats the air.
	Outlet pipe / sump hose	Check outlet pipe for signs of damage and leaks.	Pipe / hose should be intact and no leakage detected during drain operation.
	LED display (if applicable)	Check that the appropriate information (clock, cycle number, time remaining etc) is shown in the display area.	All appropriate information is shown in the display area.

² The use of clean items is to ensure that the dishwasher does not damage or soil the items during the cleaning or drying cycles.

Further information and relevant equipment

All former user identification (e.g. asset tags, portable appliance test stickers, company logos etc.) should be removed. Manufacturers brand labels and rating plates should not be removed. If any process fails the unit may require disassembly and / or repair. Identify any hazards, risks and controls before the appliance is disassembled to reduce risk. Where replacement components are required to replace a missing or faulty component, such replacements must not impair the product safety. The appliance should then be retested for safety and for function.

Where replacement components are to be used, they should be original equipment manufacturer (OEM) replacement components, OEM approved pattern components, reclaimed identical components or aftermarket components appropriate for the intended application and purpose.

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Televisions

The protocol below describes a series of minimum tests that should be performed on televisions in order that the product can be considered functional and fit for re-use. The equipment should pass these tests in order for it to be considered suitable for re-use. The outcome of these tests should be recorded for auditing purposes. This protocol should be used within the framework of PAS 141 for re-using electrical equipment. The tests are general in nature so that the protocol can be applied as widely as possible. As a consequence, specific testing procedures and techniques are not described and appropriate equipment should be used to complete the described protocols.

Scope

This protocol refers to televisions including analogue and digital televisions, featuring cathode ray tube (CRT), LCD, rear projection and plasma screens. The televisions should be able to receive and decode television signals through an aerial. This protocol excludes computer monitors or other specialist display equipment and projectors. Accessories, such as speakers and stands that originally accompany the television are also included.

Test procedure¹

In addition to the specific tests, inspection of the electrical and electronic equipment prior to use should be performed to ensure compliance with the law. For example, all equipment should undergo Portable Appliance Testing to ensure electrical safety. Inspection of the cosmetic condition of the equipment should also be performed to ensure that the external casing is not damaged in such a way that could affect the future performance of the product (e.g. a crack in the casing that could lead to degradation of the internal components).

Preparation process	Components	Test	Test results
Visual inspection	TV screen (CRT, LCD screen and plasma)	Examine the screen/tube face for scratches.	The screen should be free from clearly visible scratches or those that affect the picture quality.
	Knobs, switches and fixings	Check to see if there are any knobs, switches or fixings missing or damaged.	All should be present and undamaged.
	Cabinet and back panel	Examine cabinet to ensure that there are no fractures or corrosion.	There should be no fractures or corrosion present
	Batteries and battery compartments	Check for any corrosion and / or damage – remove spent batteries.	Compartment should be clean and dry and terminals not corroded.
	Input and output sockets including aerial, SCART and audio	Examine the sockets for any damage.	All sockets should be undamaged.
	Burn-in	Inspect plasma screens for burn-in.	No significant image degradation due to screen burn.

¹ Sources include the FRN re-use protocols

Preparation process	Components	Test	Test results
Safety	Plug and cable	Check the plug is sleeved and is fitted with the correct fuse. Examine the power cables for any signs of damage and check they are connected correctly.	Plug is correctly wired and fused, all leads and cables undamaged.
Function test	Operation of the TV	Plug in and turn the television on and connect to an aerial or other input device. Leave on test for a minimum of 10 minutes.	The television finds the channels and shows a picture. Appliance should not become overheated.
	Picture quality, colour and brightness	Check for clear vision. Observe the picture on a number of different channels. Test if brightness, colour and contrast can be adjusted.	The picture produced is clear. The picture is bright with good contrast and resolution. The contrast, brightness and colour controls must function allowing adjustment.
	Dead pixels	Using specialist software, check flat panels for dead and frozen pixels.	The dead pixel count should be less than 10.
	Integral speakers/sound	Check volume controls operate by raising and lowering the volume. Confirm clear sound.	Sound can be heard and is clear. The volume control operates raising and lowering the volume.
	On-set controls and remote controls (if present). If no remote control supplied, use generic remote control for test.	Check switches and fixings are in place and functioning. Check remote control keypad symbols can be read. Try different functions of remote control. Check picture controls: contrast, colour, volume etc. Check remote control.	All switches and fixings work as expected and all control markings visible. The TV should respond to remote control.
	Input and output sockets including aerial, SCART and audio	Connect devices through the sockets to television.	TV should display the connected devices.
	Accessories	Inspect any accessories supplied with the appliance -ensuring they are in good condition and undamaged.	External speakers and other accessories are in good condition and wiring / cabling is intact and correctly wired.

Further information and relevant equipment

Software and hardware (with outputs) should be available for testing the screen resolution and quality. Equipment that uses test signals for input and output of the screen may be necessary.

All former user identification (e.g. asset tags, portable appliance test stickers, company logos etc.) should be removed. Manufacturers brand labels and rating plates should not be removed.

If any process fails the unit may require disassembly and / or repair. Identify any hazards, risks and controls before the appliance is disassembled to reduce risk. Where replacement components are required to replace a missing or faulty component, such replacements must not impair the product safety. The appliance should then be retested for safety and for function.

Where replacement components are to be used, they should be OEM replacement components, OEM approved pattern components, reclaimed identical components or aftermarket components appropriate for the intended application and purpose. The original equipment manufacturer's user manual should be used where available to ensure the equipment functions as originally intended.

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Washing machines, tumble dryers and washer/dryers

The protocol below describes a series of minimum tests that should be performed on washing machines, washer/dryers and tumble dryers in order that the product can be considered functional and fit for re-use. The equipment should pass these tests in order for it to be considered suitable for re-use and the outcome should be recorded for auditing purposes. This protocol should be used within the framework of PAS 141 for re-using electrical equipment. The tests are general in nature so that the protocol can be applied as widely as possible. As a consequence, specific testing procedures and techniques are not described and appropriate equipment should be used to complete the described protocols.

Scope

This protocol refers only to domestic-use machines that use water as the primary cleaning solution and includes top- and front-loading washing machines, washer/dryers and tumble dryers, as opposed to dry cleaning machines (which use alternative cleaning fluids) or ultrasonic cleaners. It excludes twin-tub machines, which are rarely available. The original equipment manufacturer's user manual should be used where available to ensure the equipment functions as originally intended.

Test procedure¹

In addition to the specific tests, inspection of the electrical and electronic equipment prior to use should be performed to ensure compliance with the law. For example, all equipment should undergo Portable Appliance Testing to ensure electrical safety. Inspection of the cosmetic condition of the equipment should also be performed to ensure that the external casing is not damaged in such a way that could affect the future performance of the product (e.g. a crack in the casing that could lead to degradation of the internal components).

Washing machines, washer/dryers and tumble dryers:

Preparation process	Component	Test	Test results
Visual inspection	Hoses / trims / connectors/ seals	Check hoses and trims for signs of damage / tears etc and that connectors are undamaged. Check door seals for any damage	All hoses / connectors and seals are undamaged and fit to machine tightly. Trims are present / undamaged.
	Door or lid hinges and handles and soap trays	Visually check the door or lid and handles. Soap trays should be present and not cracked.	All parts are secure and intact.
	Feet / wheels	Check all four feet / wheels	Feet / wheels are all present and can be rotated to level appliance and suspension OK
	Knobs, switches and fixings	Check to see if there are any knobs, switches or fixings missing or damaged	All should be present and undamaged

¹ Sources include the FRN re-use protocols

Preparation process	Component	Test	Test results
	Cabinet and back panel	Examine cabinet to ensure that there are no fractures or corrosion	There should be no fractures or corrosion present
Safety	Plug and lead cables	Examine the plug (insulated) and lead cables.	All in good condition, sleeved, with correct fuse, correctly and securely connected.
Function test	Motor	Check the motor to ensure it operates quietly without excess heat generation.	The motor runs smoothly and quietly.
	Drum / spider	Check drum / spider bearings.	All bearings should be in places and secure.
	Door – locking and unlocking	Plug in the machine and switch on. Set to a pre-set programme/cycle and check the door locks. Check the locking mechanism works before the machine begins operating. On completion of the programme/cycle, check the lock stays on for a brief period after the machine programme has ended.	Once the machine is started on a set programme the door locks as expected. On completion (on older machines) of the programme there is a delay before the door can be opened.
	Hoses / connectors / seals	Connect all hoses to water supply and check for leaks, include the drain hose. Ensure the hot and cold inlet valves are operating correctly and not leaking (where fitted).	Washing machine fills with water and there is no leakage from any of the hoses, door seal or from around the connectors.
	Programmes	Fill the drum with clean textile items. ² Run the appliance on a full, non-fast coloured 40°C cycle. Check drum rotates on wash cycle.	Machine follows set programme through to the end. Washed textiles are visibly clean and do not have a malodour.
	Internal components, pressure switches, modules and wiring	Check all components etc originally fitted by manufacturer are present and functioning correctly.	All components etc should be present, show no sign of damage and respond to functionality tests.
	Thermostat and heating element	Begin a programme and ensure that the water heating process begins.	Water heats up to the necessary temperature.
	Detergent dispenser	Check detergent dispenser and valve. Place detergent in dispenser.	During the washing cycle the detergent is taken from the dispenser.
	Rinse cycle	Set the machine to the rinse cycle and observe. The machine should take in water during the rinse cycle without overflowing, and drain the water on completion.	Water is taken in and the machine goes through a rinsing cycle.
	Drain operation	Ensure water drains after final rinse.	The machine is empty after final rinse.
	Spin operation	The machine may have different spin speeds. Set the control to the different settings and observe if there is a difference. Check there the drum rotates for each setting. Observe machine (with full load) during fast spin for movement Check spin rotation and look out for noise, grinding or vibration.	The machine spins at the different pre-set values and during a pre-set programme completes the spin cycle. Machine should not move during fast spin. No unexpected noise, grinding or vibrations are noticed when the spin cycle begins.
	Delayed start (if available)	Check that the delayed start feature works by setting the machine to start after a certain period of time.	The appliance should start after a pre-set delay time.
	Outlet pipe / sump hose	Check outlet pipe for signs of damage and leaks.	Pipe / hose should be intact and no leakage detected during drain operation.

² The use of clean textiles is to ensure that the washing machine does not damage or soil garments in a wash cycle.

Washer/dryers and tumble dryers only:

Preparation process	Component	Test	Test results
Function test	Drying cycle	Fill the machine with damp textiles and set the temperature control to its highest setting.	The machine performs the drying cycle. Textiles are dried.
	Filter (if available)	Open filter compartment and check the filter.	The filter is present, clean and undamaged.
	Timer	Set the drying timer to run for a certain period of time.	The machine should stop when the timer reaches zero.
	Sensor drying (if available)	Check that the sensor drying feature works by selecting the function.	The dryer should automatically stop when the textiles are dry.
	Condenser system	Visually check that the condenser in a washer/dryer is producing water.	Water is produced during the drying cycle.

Further information and relevant equipment

Run the machine through a wash cycle using a suitable cleaning product on completion of the above test, and dry the chamber afterwards. A non-fast coloured 40°C test will ensure that both hot and cold water valves are activated. Standard plumbing / drainage equipment required. Appropriate control of substances hazardous to health (COSHH) and material safety data sheets (MSDS) documents should be present for the use of detergents.

All former user identification (e.g. asset tags, portable appliance test stickers, company logos etc.) should be removed. Manufacturers brand labels and rating plates should not be removed.

If any process fails, the unit may require disassembly and / or repair. Identify any hazards, risks and controls before the appliance disassembled to reduce risk. Where replacement components are required to replace a missing or faulty component, such replacements must not impair the product safety. The appliance should then be retested for safety and for function.

Where replacement components are to be used, they should be OEM replacement components, OEM approved pattern components, reclaimed identical components or aftermarket components appropriate for the intended application and purpose.

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